UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,030	11/26/2003	Kevin John Brown	2775/105	8854

2101 7590 02/21/2008

BROMBERG & SUNSTEIN LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

EXAMINER	
CATTUNGAL, SANJAY	
ART UNIT	PAPER NUMBER
3768	
MAIL DATE	DELIVERY MODE
02/21/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,030	BROWN, KEVIN JOHN	
	Examiner	Art Unit	
	SANJAY CATTUNGAL	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-4 and 6-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-4 and 6-17* is/are rejected.

7)☒ Claim(s) *2-4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/14/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 2-4 and 6-17, have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 2-4 are objected to because of the following informalities: Dependent claims must refer to a preceding independent claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 2, 3, and 6-11, are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent #6385288 to Kanematsu in view of US Patent #6574499 to Dines et al. further in view of U. S. Patent No. 5,754,623 to Seki.**

5. Regarding Claim 2, 3, and 6-11, Kanematsu discloses a radiotherapy apparatus comprising a therapeutic source, a CT imager, a computing means for providing patient position information to the controllable therapeutic source (Claims 1-3) via an operator according to the results of image comparisons (Column 6, lines 56-67 and column 7, lines 1-3). Kanematsu further teaches the manual or automatic adjustment of a patient's position based on the comparison between the CT image used for planning a radiotherapy session and the one obtained immediately before the execution of the

therapy (Column 6, lines 60-67 and column 7, lines 1-9). Kanematsu does not teach preparing three orthogonal intersecting sectional views from the output of the imager. In the same field of endeavor, Dines et al. teach a mammography apparatus wherein three orthogonal intersecting sectional views of the breast volume image can be produced on a computer display (Column 18, lines 8-30). Dines et al. also teach that this is an effective presentation of the object of interest (Column 18, lines 16-21). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Kanematsu's apparatus and employ orthogonal sectional views in order to assist the operator in allowing for a more effective presentation of the area of interest and thereby providing more accurate patient positioning for radiotherapy.

Kanematsu and Dines teach all of the above claimed limitations but do not expressly teach the use of plurality of voxels in the tomographic dataset.

Seki teaches the use of Voxels in the tomographic dataset.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kanematsu and Dines to use Voxels in the tomographic dataset. Since such a setup is a more precise representation of a 3d image. Use of Voxels in 3D imaging is same as Pixels in 2D imaging and relates to more precise data. In this case more precise location of the treatment site.

6. **Claim 4 and 15-17 is rejected under 35 U.S.C. 103(a) as being unpatentable over US patent #6385288 to Kanematsu and US Patent #6574499 to Dines et al. as applied to claim 3 above, and furtherin view of US Patent #6865253-to Blumhofer et al**

7. Regarding Claim 4, Kanematsu in view of Dines et al. teach all the elements of the current invention except for having intersecting views substantially at the isocentre of the therapeutic source. In the same field of endeavor, Blumhofer et al. teach a method and device for accurately positioning a patient in radiotherapy with the help of sectional views that are derived isocentrically (Column 2, lines 30-40) from a three-dimensional image capturing the region to be irradiated (Column 5, lined 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Kanematsu in view of Dines et al. with the teaching of Blumhofer et al. and employ views including the isocentre in order to effectively monitor the location of the volume to be treated (Column 5, lines 61-66). Further, as the isocentre is the point in space where radiation beams intersect when the Gantry is rotated during beam-on, the target tissue should be always placed at the isocentre in order to minimize the damage to normal tissues.

8. Regarding Claim 15 and 17, Kanematsu in view of Dines et al. teach all the elements of the current invention except for the details of image comparison. In the same field of endeavor, Blumhofer et al. disclose, as well known in the art, displaying both real time sectional views and reconstructed x-ray images taken from a previous investigation (Column 1, lines 24-26). Furthermore, by executing controls from an operator via input means, such as keyboard and mouse, the two sets of images are superimposed and can be moved over one another on the display unit (Column 3, lines 32-38). Blumhofer et al. also teach that comparing contours, i.e. outlines of superimposed images is one of means in determining the patient positioning error

(Column 11, lines 53-58). Therefore,. it would have been obvious to one of ordinary skill in the art at the time of invention to modify the teachings of Kanematsu in view of Dines et al. with the teaching of Blumhofer et al. and use the outlines of superimposed sectional, views obtained before and during a treatment as an alternative way to compare images in order to accurately position a patient undergoing radiotherapy.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANJAY CATTUNGAL whose telephone number is (571)272-1306. The examiner can normally be reached on 9:30 - 5:00 pm.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L Casler/
Supervisory Patent Examiner, Art Unit 3737

SPC